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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/018,073

12/21/2001

Jean L Lalanne

146.1375

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09/05/2003

MUSERLIAN AND LUCAS AND MERCANTI, LLP
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EXAMINER

KAM, CHIH MIN

ART UNIT

PAPER NUMBER

1653

DATE MAILED: 09/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/018,073	FAUVEAU ETAL	
	Examiner	Art Unit	
	Chih-Min Kam	1653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16, 19 and 20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16, 19 and 20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>1201</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Oath/Declaration

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02. The oath or declaration is defective because non-initialed and/or non-dated alterations have been made to the address of inventor Stephen Hawser. See 37 CFR 1.52(c).

Claim objections

2. Claim 1 is objected to because of the use of the term “-(CH₂)₂Nalk⁺X”. Use of “-(CH₂)₂N(alk)⁺X” is suggested.
3. Claim 2 is objected to because of the use of the term “A compound of claim 1”, since the claim depends from claim 1, the term “The compound of claim 1” is suggested. See also claims 3-16, 19 and 20.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 19 and 20 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of inhibiting fungal growth in vitro using an echinocandine compound of formula (I), does not reasonably provide enablement an antifungal composition comprising an antifungally effective amount of an echinocandine compound of formula (I), or a method for treating fungal infections in warm-blooded animals comprising

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administering an antifungally effective amount of the echinocandine compound. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

Claims 19 and 20 encompass an antifungal composition comprising an antifungally effective amount of an echinocandine compound of formula (I) (claim 19), or a method for treating fungal infections in warm-blooded animals comprising administering an antifungally effective amount of the echinocandine compound (claim 20). The specification, however, only discloses cursory conclusions (pages 5-6) without data supporting the findings, which state that compounds of formula (I) have useful antifungal properties and can be used as medicaments in man or animals to combat fungus invasion in various illnesses. There are no indicia that the present application enables the full scope in view of treating fungal infections in warm-blooded animals with the compound of formula (I) as discussed in the stated rejection. The present application provides no indicia and no teaching/guidance as to how the full scope of the claims is enabled. The factors considered in determining whether undue experimentation is required, are summarized in In re Wands (858 F2d at 731,737, 8 USPQ2d at 1400,1404 (Fed. Cir.1988)). The factors most relevant to this rejection are the breath of the claims, the presence of working examples, the state of the prior art and relative skill of those in the art, the unpredictability of the art, the nature of the art, the amount of direction or guidance presented, and the amount of experimentation necessary.

(1). The breath of the claims:

The breath of the claims is broad and encompasses unspecified variants regarding the antifungal compositions and the effects of the compounds in various fungus-related illnesses, which are not adequately described or demonstrated in the specification.

(2). The presence or absence of working examples:

The specification indicates compounds of formula (I) have good inhibitory activity against glucan synthase of *Candida albicans* and *Aspergillus fumigatus* enzyme (page 12). However, there are no data presented in these examples, and no working examples indicating the *in vivo* treatment of fungal infections.

(3). The state of the prior art and relative skill of those in the art:

The prior art (e.g., Balkovec et al., WO-9613272) indicates echinocandine compounds such as aza cyclohexapeptides are useful as antifungal agents, however, the general knowledge and level of the skill in the art do not supplement the omitted description, the specification needs to provide specific guidance on the treating conditions such as the dose, the time and the effect of the compound for *in vivo* treatment to be considered enabling for variants.

(4). Predictability or unpredictability of the art:

The claims are directed to treating fungal infections *in vivo* using the compound of formula (I). Since the treating conditions such as specific dose used for treating a specific fungus-related illness and the effect of the echinocandine compound of formula (I) in the treatment are not sufficiently described, the outcome of the claimed method is highly unpredictable.

(5). The amount of direction or guidance presented and the quantity of experimentation necessary:

The claims are directed to an antifungal composition comprising an antifungally effective amount of an echinocandine compound of formula (I), and a method for treating fungal infections in warm-blooded animals comprising administering the echinocandine compound. The specification indicates compounds of formula (I) have good inhibitory activity against glucan synthase of *Candida albicans* and *Aspergillus fumigatus* enzyme (page 12), and the dose administered is variable according to the illness treated, the patient, the administration route and the compound used, and it can be 50 mg to 1 g per day by oral or parenteral route using the compound in Examples 2 and 3 (pages 6-7). However, the specification fails to demonstrate the use of specific dose of the compound in the treatment and the *in vivo* effect of the compound in treating various fungus-related illnesses, nor indicates how to extrapolate from *in vitro* data to *in vivo* effect. Moreover, there are no working examples indicating the antifungal effect of the compound in the treatment of various fungus-related disorders. Since the specification fails to provide sufficient teachings on the treatment of various fungus-related disorders using the compound of formula (I), it is necessary to have additional guidance and to carry out further experimentation to assess the effects of the compounds in the treatment of fungal infections.

(6). Nature of the Invention

The scope of the claim includes treating fungal infections using the compound of formula (I), however the specification has not demonstrated the treatment of various fungus-related disorders with the compound of formula (I) is effective *in vivo*. Thus, the disclosure is not enabling for reasons discussed above.

In summary, the scope of the claim is broad, while the working example does not demonstrate the claimed variants, the effect of the compound is unpredictable and the teachings

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in the specification are limited, therefore, it is necessary to have additional guidance and to carry out further experimentation to assess the effects of the compound of formula (I) in treating fungal infections.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-16, 19 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
6. Claims 1-16, 19 and 20 are indefinite because of the use of the term “all possible isomeric forms and their mixtures” or “and/or”. The term “all possible isomeric forms and their mixtures” or “and/or” renders the claim indefinite, it is unclear what isomers are intended as the possible isomeric forms, what isomers and how much of each isomer are included in the mixture, and whether the limitation after “and/or” is included or not, and if included is to be read as an alternative “or” or the conjunctive “and”. Note that Markush groups must be closed and “and their mixtures” is open language in regard to the number of components and amounts of each in the mixtures which are defined. Claims 2-16, 19 and 20 are included in the rejection because they are dependent on rejected claims and do not correct the deficiency of the claim from which they depend.
7. Claim 12 is indefinite as to the structure of R₂, it is not clear which position in R₂ is connected to N.

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8. Claim 13 recites the limitation " $-\text{CH}_2-\text{C}(\text{CH}_3)_2\text{NH}_2$ " in line 4. There is insufficient antecedent basis for this limitation in the claim, claim 1 does not recite this structure.

9. Claim 16 is indefinite because of the use of the term "amine derivative", "amine functionalization agent" or "a separation agent of the different isomers". The term "amine derivative", "amine functionalization agent" or "a separation agent of the different isomers" renders the claim indefinite, it is unclear which compound is intended as the amine derivative, and how different the amine derivative is from the parent compound; what compound is intended as amine functionalization agent; and what agent is used for separation of different isomers. Deletion of the term "amine derivative" or use "amine compound" is suggested.

10. Claim 20 is indefinite because the claim lacks essential steps in the method of treating fungal infection. The omitted step is outcome of the treatment.

Conclusions

11. No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Min Kam whose telephone number is (703) 308-9437. The examiner can normally be reached on 8.00-4:30, Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Low, Ph. D. can be reached on (703) 308-2923. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-0294 for regular communications and (703) 308-4227 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

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Chih-Min Kam, Ph. D. *CMK*
Patent Examiner

September 3, 2003

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